

Electricity Unit Review

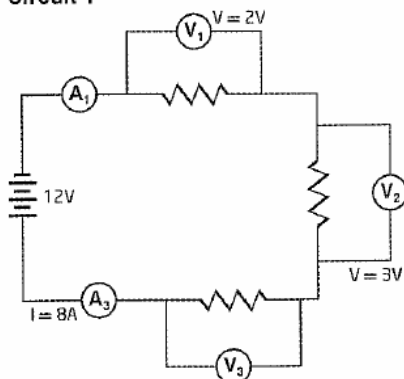
Short Answer

1. If all matter is made up of atoms, and atoms contain charged particles, why is all matter naturally neutral?
2. Can all subatomic particles be transferred?
3. What is static electricity?
4. State the Law of Electric Charges (also call the Law of Like Charges).
5. What is the only test that you can do to determine the charge on an object?
6. What is an induced charge separation?
7. If a neutral object has no net charge, why is it attracted to a charged object that is placed nearby?
8. Write a procedure to explain how to charge a metal leaf electroscope permanently by induction.
9. List two applications that use static electricity.
10. List the three methods of building up a static charge. Draw a diagram to show how each works.
11. Which method(s) of charging create the same charge as the charged object being used?
12. What is the electrostatic series, and how does it work?
13. Experiments were performed with three balloons, labelled X, Y, Z. X attracts Y. Z repels X. What can you infer about the type of charge on each balloon.
14. Explain the statement "electric charge is neither created nor destroyed." Describe how the movement of one type of particle can result in the formation of two different types of electric forces.
15. How is current electricity different from static electricity?
16. What are four basic parts of a circuit? What is the function of each?
17. Draw the proper symbols for: a single cell, light bulb, switch, ammeter, voltmeter, resistor.
18. What is current? What is the symbol for current? What units are used to measure current? What type of meter is used to measure current? How is the meter connected?
19. What is potential difference? What is the symbol for potential difference? What units are used to measure potential difference? What type of meter is used to measure potential difference? How is the meter connected?
20. State four properties of a wire that affect the resistance of the wire. Describe how a change in each property will change the resistance of the wire.
21. Draw a circuit diagram to show three cells in parallel connected to two light bulbs in series with one another, but parallel to a resistor. The light bulbs and the resistor should be controlled by separate switches.
22. Draw a circuit diagram to show a 9.0V power supply connected to a resistor, light bulb that are all in parallel to one another and controlled by different switches.
23. What is efficiency? Why is efficiency important? Are all appliances that have EnerGuide labels efficient?
24. Calculate the resistance of a load that has a current of 1.6A flowing through it if the potential difference is 7.5V.
25. A motor with a resistance of 75Ω is connected to a 122V outlet. Calculate the current flowing through the motor.
26. A toaster has a resistance of 35Ω and a current of 3.00A flows through it when it is turned on. Calculate the potential difference.
27. A student builds a simple series circuit with two light bulbs and two batteries and measures the current flowing through the circuit. Then the student changes the circuit so that the two light bulbs are in parallel to one another and measures the current again. The student notices that the current is higher in the parallel circuit even though the batteries, the light bulbs and the wires were the same. Explain why the total current was larger in the parallel circuit.
28. Relatively few applications make use of static electricity, while many applications use current electricity. Describe the properties of static and current electricity that account for this difference.

29. Use diagrams to compare and contrast the relationship among current, voltage, and resistance in a circuit that contains loads in series and in a different circuit that contains loads in parallel. (see section 11.5)
30. Thinking and Inquiry: Question p.480 #17 and #19.
31. Read p. 548-550 and Answer questions p. 550 #2-6.

In circuits 1 and 2, the readings on some of the ammeters and voltmeters are given. Determine the values of the rest of the meters. List the values below each diagram.

Circuit 1



Circuit 2

